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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,852	12/09/2003	Kiyonori Oyu	ELPIDA 03USFP943	5218

27667 7590 09/29/2005

HAYES, SOLOWAY P.C.
3450 E. SUNRISE DRIVE, SUITE 140
TUCSON, AZ 85718

EXAMINER	
NGUYEN, THINH T	
ART UNIT	**PAPER NUMBER**
2818	

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/730,852	OYU ET AL.	
	Examiner	Art Unit	
	Thinh T. Nguyen	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This is in response to Applicant's Amendment filed 7/18/2005.

Note that the figures and reference numbers referred to in this Office Action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-
(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claim 1,2 are rejected under 35 U.S.C. 102(b) as being anticipated by Uchida et al. (U.S. Patent 4,682,200) or under 35 U.S.C. 102(e) as being anticipated by Hidaka et al. (US patent 6,603,685)

REGARDING CLAIM 1

Uchida discloses (in the abstract, in column 7 lines 44-48) a semiconductor memory device comprising: a semiconductor substrate; and gate electrodes formed for a transistor on said semiconductor substrate through a gate insulating film, wherein a gate length of said gate electrode is longer than a minimum processing dimension.

Similarly, Hidaka (column 4 lines 28-32) discloses the same invention.

REGARDING CLAIM 2

Uchida anticipates claim 2 since the channel length (the shortest distance between the drain and source diffusion region of the MOSFET) is inherently the same as the gate length as shown in the disclosure by Tobita (US patent 6,043,638)

Similarly, Hidaka (column 4 lines 28-32) discloses the same invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art (the AAPA) in view of Bronner (U.S. patent 6,767,789).

REGARDING CLAIM 3-4

The AAPA (as shown in fig 1, fig 2, the background section of the application 0 discloses all the invention except is silent about the gate length that is longer than the processing dimension. Bronner, however (column 2 lines 52-53) discloses that a gate length longer than the processing dimension can be use to cure a leakage problem in DRAM.

It would have been obvious to one of ordinary skill in the art the time the invention was made to complement the teachings by the AAPA with the teachings by Bronner in order to come up with the invention of claim 3-4.

The rationale is as the following:

A person skilled in the art at the time the invention was made would have been motivated to improve the retention time of the DRAM device as suggested by Bronner in column 2 lines 52-53.

Fig. 2 PRIOR ART

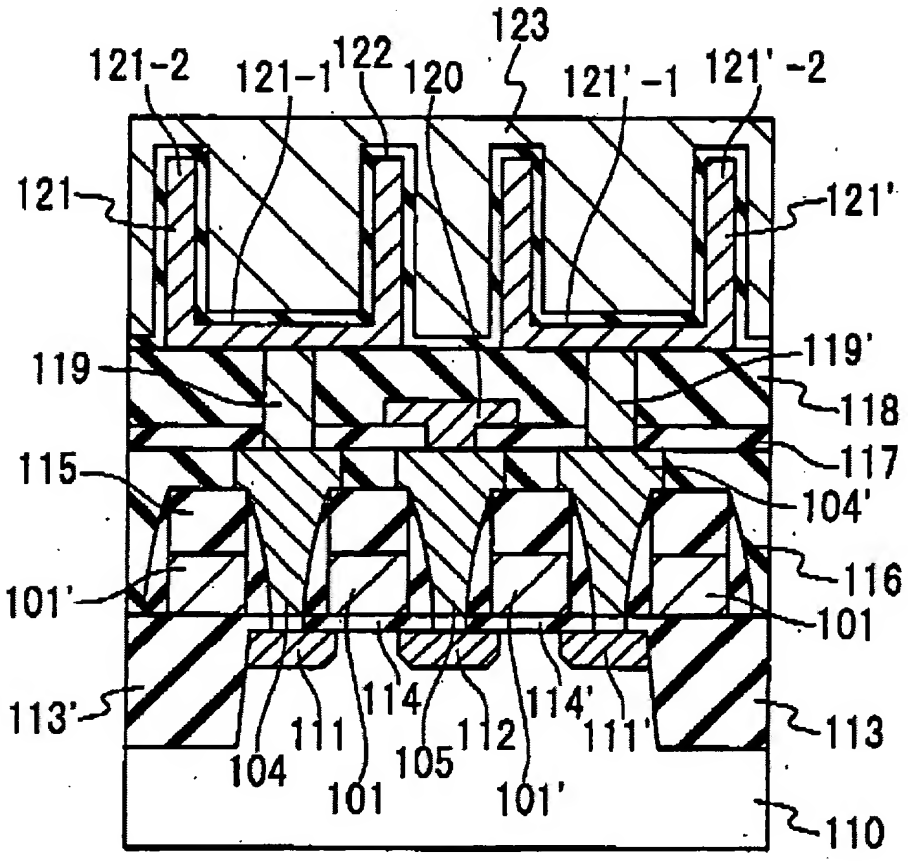
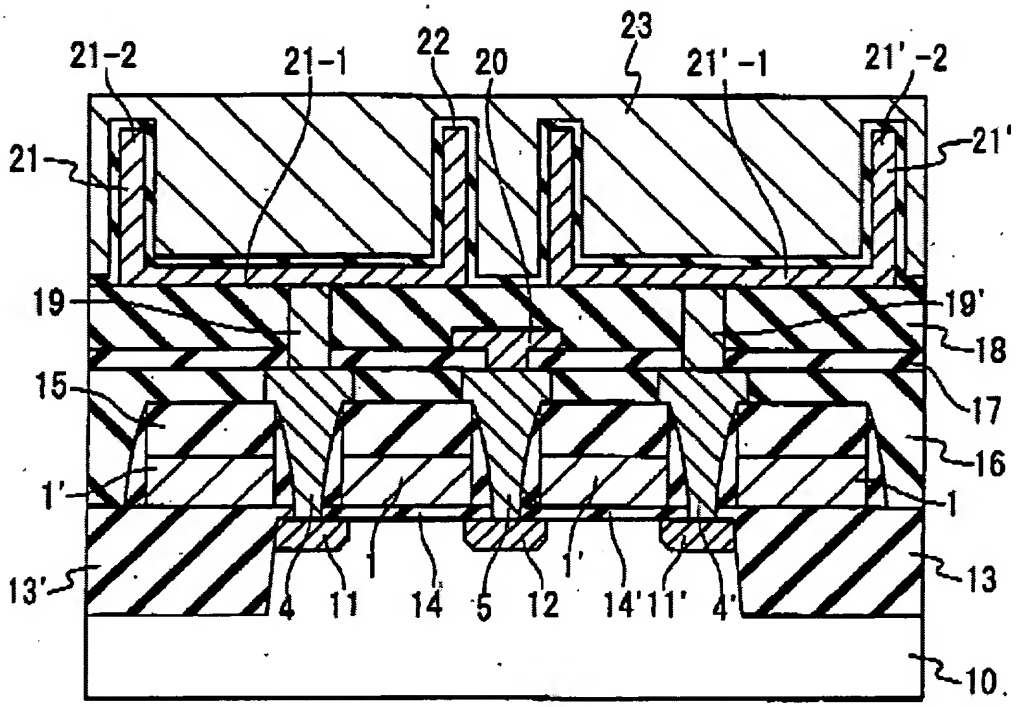


Fig. 5



APPLICANT'S INVENTION

6. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art in view of Bronner et al. (US patent 6,767,789) and in further view remark.

REGARDING CLAIM 5-6

The combined teachings by the AAPA and Bronner disclose all the invention except for the side length of the first contact and the second contact. These features, however, are considered obvious since it has been held that when the general condition of a claim are

disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hidaka et al. (US patent 6,603,685) in view of further remark.

REGARDING CLAIM 7-8

Hidaka (column 4 lines 28-32) discloses all the invention except for the impurity concentration or the exact gate length. These features, however, are considered obvious since it has been held that when the general condition of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

8. Applicant's arguments with respect to claims 1-8, filed July 18th 2005, have been fully considered but they are not persuasive.

REGARDING CLAIM 1-2

Applicant asserts that neither Uchida nor Hidaka anticipate claims 1-2. The Examiner respectfully disagrees. As disclosed in the background section of Applicant' Application (also referred as Applicant Admitted Prior Art) **half pitch are equal to minimum processing dimension F.** This is also a well-known fact in the art evidenced by the disclosure by Tran (US patent 6,380,576) column 6 lines 29-31). Since Uchida disclose the gate length is longer than a minimum processable size (i.e. F) and Hidaka disclose a gate length longer than the minimum design dimension (i.e. F), these references correctly anticipated claim 1-2.

REGARDING CLAIM 3-6

Applicant asserts that Bronner reference combined with the AAPA do not disclose the invention of claims 3-6. The Examiner respectfully disagrees as the Examiner has already proved that half pitch is equal to minimum processing dimension F. Furthermore, Bronner in the background of his invention discussed different option to solve the sub- threshold leakage problem of the MRAM and one of the option to solve this problem is to increase the gate length longer than the minimum processing dimension (gate length > F) while sacrificing the size of the memory cell (the same logic applies to Applicant invention.) Therefore, it is perfectly logical for a person skill in the art at the time the invention was made looking to solve the leakage problem to combine this well known teachings in the Art as mentioned by Bronner with teachings of the AAPA and come up with the invention of claim 3-6

REGARDING CLAIM 7-8.

Applicant argument about the rejection of claim 7-8 based on the Hidaka reference is found unpersuasive for the following reasons:

As discussed above, Hidaka does disclose that gate length must be longer than half-pitch, moreover Hidaka disclose a memory cells with strong driving transistors, therefore the relative impurity concentration and gate length are all important variable when fabricating these transistors and a person skilled in the art would have been motivated to find the optimum working range for these parameters.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 703-305-0421. The examiner can normally be reached on 9:30 am - 6:30 pm Monday to Friday..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID NELMS can be reached on (703) 308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval [PAIR] system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thinh T Nguyen TTN

Art Unit 2818

David Nelms
Supervisory Patent Examiner
Technology Center 2800